REMARKS

Claims 1-11, 31-36, 55, 72-79 and 81-86 were previously canceled while claims 37-54 were previously withdrawn from consideration. Therefore, claims 12-30, 56-71, 80 and 87-110 are currently at issue.

Claims 12-30, 56-71, 80, and 87-110 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. While the Applicants respectfully disagree with this rejection, Applicants have removed the language at issue from the claims in view of other amendments made herein to independent claims 12, 56, 80, 91. Specifically, claims 12, 56, 80, and 91 are amended to recite a process controller that produces a control message for receipt by a field device and a first interface that is adapted to receive the control message from the process controller for the first device via the bus or to provide one or more field device messages from the first device to the process controller, where the field device controls a physical process control parameter or measures a physical process control parameter. These elements are fully supported at least at page 14, line 21 – page 15, line 7; and page 1, lines 12-13. In particular, page 1, lines 12-13 supports that field devices function to control a physical process control parameter or measure a physical process control parameter. Page 14, lines 24-27 supports that process controllers produce control messages for receipt by a field device and that field devices produce messages for receipt by a process controller. Page 14, lines 27-29 further supports that communications between the process controllers and the field devices are facilitated by I/O devices connected to a bus between the controller and the field devices. Page 14, line 29 – page 15, line 1 also supports that the I/O device receives messages from a field device and passes the messages along the segment to a process controller and vice versa. It follows that the amendment is fully supported by the specification and is compliant with the written description requirement of 35 U.S.C. § 112, first paragraph. Therefore, the § 112 rejection should be withdrawn.

Each of claims 12-30, 56-71, 80, and 87-110 now recites an input/output (I/O) device that receives control messages from a process controller for a first device via a bus using a first interface and that communicates with a first device apart from the bus using a second interface, where the I/O device severs the link to the bus upon detection of a fault. Further, these claims are amended to more clearly recite a process controller that produces a control message for receipt by a field device and a first interface that is adapted to receive the control

message from the process controller for the first device via the bus or to provide one or more field device messages from the first device to the process controller, where the field device controls a physical process control parameter or measures a physical process control parameter. None of the cited art discloses or teaches an I/O device that receives control messages for receipt by a field device from a process controller via a bus, where the I/O device communicates with a first device apart from the bus and severs a coupling to the bus upon detection of a fault, as recited by the claims at issue. Therefore, none of the cited art can anticipate any of the claims at issue.

Generally, a process controller may communicate with a plant network system to provide information about operations under the process controller's management (e.g., field device operation) and to receive setpoint signals from the plant network system that are used in adjusting the operation of a process controller. However, a plant network system is not a process controller. Specifically, the plant network does not provide a control message intended for receipt by a field device. While a device (e.g., an operator workstation) on the plant network may provide, in some instances, a setpoint signal to a process controller to adjust the operation of a process controller, a setpoint signal is distinct from a control message because a control message is received by a field device. A setpoint signal is, on the other hand, received by a process controller that understands what the setpoint signal indicates, and sends a control message to one or more field devices based on the setpoint (e.g., to adjust a process control parameter towards a setpoint value). The setpoint signal itself is not received by a field device.

In the previous office action, the Examiner read a plant control network (element 11 of U.S. Patent No. 5,379,278 by Safadi) as a process controller and read a process controller (20, 20A, and 20B of Safadi) as the claimed I/O device. Applicants have amended the pending claims to prevent this unique interpretation of the devices in Safadi from reading on the claims. Specifically, Applicants have amended the claims to recite that the process controller produces a control message for receipt by a field device and that a first interface of the I/O device is adapted to receive the control message from the process controller for a first device via the bus or to provide one or more field device messages from the first device to the process controller, where the field device controls a physical process control parameter or measures a physical process control parameter. As amended, the claims make clear that the plant control network of Safadi (element 11) is not a process controller that produces a

control message for receipt by a field device nor is the Safadi process controller (element 20) an I/O device that receives a control message for receipt by a field device.

In particular, none of the devices that make up the plant network 11 of Safadi can act as a process controller with respect to the process controllers 20, 20A, and 20B, cited by the office action as the claimed I/O devices. As shown in Figure 1 of Safadi, the process controller 20 may be connected to a plant control network that includes a universal operating workstation 122, an application module 124, a history module 126, and a computer module 128. However, none of the universal operating workstation 122, application module 124, history module 126, and computer module 128 is the recited process controller because none of elements 122-128 produces a control message for receipt by a field device. As discussed above, a workstation or other device on a plant control network may send setpoint signals to various process controllers in a plant. However, these setpoint signals are not control messages for receipt by a field device. Instead, the messages from the workstation to the controller are intended for receipt by the controller and the workstation messages terminate once they reach the controller, or at least there is no indication in Safadi that any messages from the devices 122 and 128 propagate to the field devices (which are not shown in Safadi). In other words, the messages do not propagate further than the controller. It follows, therefore, that none of the Safadi devices 122-128 described within plant control network 11, as shown in Figure 1, is the recited process controller.

In a similar manner, the Safadi controllers 20, 20A, and 20B are not I/O devices because Safadi does not disclose that its controllers 20, 20A, or 20B receive control messages for a field device from the plant network 11. While Safadi discloses that its controllers 20, 20A, and 20B can separately communicate with the devices of plant network 11 (via UCN 14 or UCN 14A) and with I/O devices 21A-21D (via busses 22A and 22B), Safadi fails to disclose that its process controllers receive any messages for a field device, much less communicate a control message for receipt by a field device to a first device. In fact, Safadi specifically discloses that its controllers 20, 20A, and 20B (which the office action reads as I/O devices) control the field devices. (See Col. 3, line 52; Col. 3 lines 65 – Col. 4, line 11). As generally understood, controllers operate field devices by, for example, generating and sending a control message to a field device. Thus, the process controllers 20, 20A, and 20B of Safadi act as process controllers, and not I/O devices that receive or pass along messages produced by a plant network device (which the office action reads as a process controller) for

receipt by a field device. Because the Safadi process controllers 20, 20A, and 20B do not receive control messages for receipt by field devices, the Safadi controllers can not be the claimed I/O devices. Applicants also note that Safadi itself distinguishes between a process controller, such as devices 20, 20A, and 20B and a plant network 11 by labeling elements 20, 20A, and 20B as process controllers and labeling element 11 as a plant network. As known by those skilled in the art, the only process controllers disclosed by Safadi are process controllers 20, 20A, and 20B.

Applicants respectfully submit that none of the pending claims are rendered obvious by any combination of Safadi, Yap (U.S. Patent No. 6,073,193), Lee et al. (U.S. Patent No. 6,615,301), what the examiner has referred to as the Applicants Admitted Prior Art (AAPA), and Kato et al. (U.S. Patent No. 6,397,277). In particular, no combination of Safadi with Yap, Lee et al., the AAPA, and Kato et al. can render any of the claims at issue obvious because none of Yap, Lee et al., the AAPA or Kato provides the disclosure missing in Safadi. In particular, while each of Yap, Lee et al. and Kato et al. are generally directed to computer related communication devices, these documents do not disclose a process control system, much less the use of I/O devices or field devices within a process control system. Still further, it does not appear that any of these documents discloses the severing of a communication connection based on the detection of a device fault within any type of device, much less a process control device such as an I/O device or a field device. As a result, none of Yap, Lee et al. or Kato et al. provides any disclosure or suggestion of an I/O device that severs its connection with a bus upon the detection of a device fault. Likewise, the AAPA, which merely discusses one possible effect of an I/O device undergoing a failure on a bus, does not provide this disclosure.

Still further, none of the cited art provides a motivation to modify any of their teachings to provide an I/O device for coupling one or more devices (e.g., field devices) to a process controller via a bus that severs a connection between the I/O device and the bus upon detection of a fault in the I/O device. Safadi does not even recognize the problem with malfunctioning I/O devices because it is not concerned with an I/O device setup as in the claimed configuration. Specifically, Safadi discloses operation of a redundant process controller in which one controller must be disconnected while a second controller is activated. Thus, Safadi is primarily concerned with faults originating within a process controller, not within an I/O device that may interfere with the communications of other

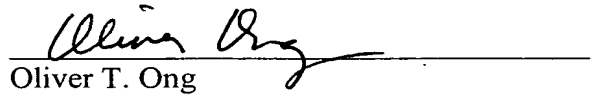
devices, including a process controller, on a bus. The Safadi disclosure is completely directed to the situation which arises when redundant controllers are connected to redundant buses, which gives rise to a "jabber" condition in the controller when both busses experience problems. (See, Safadi, Col. 4, lines 14-43). The claimed device and method, on the other hand, is used, for example, to prevent a faulty I/O device from interfering with the communications of other such devices on the bus. Safadi does not recognize this problem, much less provide any suggestion or motivation for correcting this problem.

It is clear that the prior art must make a suggestion of or provide an incentive for a claimed combination of elements to establish a *prima facie* case of obviousness. See, *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1446 (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985). This principle holds true even if the applied art could be modified to produce the invention recited by the pending claims. See, *In re Mills*, 16 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 1990); *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) ("The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.") Because each of Safadi, Yap, Lee et al., the AAPA and Kato et al. fails to disclose or provide any motivation for severing a communication connection between an I/O device and the bus to which it is connected within a process control system, it follows that no combination of these documents can render any of the claims 12-30, 56-71, 80 and 87-90 obvious.

CONCLUSION

For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the rejections and allowance of claims 12-30, 56-71, 80 and 87-110. If there are matters that can be discussed by telephone to further the prosecution of this application, Applicants respectfully request that the Examiner call its attorney at the number listed below.

Respectfully submitted,

By: 

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